

REMARKS

Claims 1-18 are pending in the application. Claims 15-18 have been withdrawn. Claims 2, 13 and 14 have been canceled. Claims 1, 3, 12 and 15 have been amended. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of these amendments and remarks.

Claim Rejections -- 35 USC § 112

Claims 2, 3, 5, and 8 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Claim 2 has been canceled. Claim 1 has been amended to recite that the tuning element is "configured to be fixed to the torsion rod at selectable positions along the torsion rod." Applicants submit that the meaning of this feature is clear to one of ordinary skill in this art, and at least one enabled example is disclosed in the specification.

Claim 3 has been amended to recite that the tuning element is "configured to be displaced with respect to the stator and then fixed in displaced position."

Regarding claim 5, paragraph [0028] of the specification explains, with respect to the illustrated embodiment as shown in FIG. 5, that "the upper part 17 of the adjusting element 6 engages into one respective groove 19 in the coil form 8 that extends parallel to the longitudinal axis of the drive unit 1 on both sides and can be moved in this direction only." Thus, the tuning element can engage a groove of the stator, as comprising the coil form. Applicants submit that the claim is definite and clear.

Regarding claim 8, the specification is clear in describing the torsion *rod* as an embodiment of a torsion *element*. It is also clear that in the illustrated embodiment the torsion rod is fixed (in the region of one end) to the shaft, which is part of the rotor. See, e.g., paragraph [0026]. Applicants submit that the claim is definite and clear.

Claim Objections

Claim 13 stands objected to under 37 C.F.R. 17.5(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Although Applicants dispute the legitimacy of this objection, this claim has been canceled to promote allowance of the other claims. This objection is now moot.

Claim Rejections — 35 USC § 103

Claims 1-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,613,259 to Craft et al. ("Craft") in view of U.S. Pat. No. 4,146,020 to Moret et al. ("Moret") and further in view of U.S. Pat. No. 4,135,119 to Brosens ("Brosens"). This rejection is respectfully traversed.

Applicants have amended claim 1 to recite that the torsion element comprises "a torsion rod ... coupling the stator and rotor to one another in a torsionally elastic fashion." Support for this amendment can be found, for example, at the end of paragraph [0026]. Therefore, the torsion rod is a spring element that forms a part of the spring-mass oscillatory system.

The primary reference, Craft, is cited as showing an electric toothbrush with an oscillatory drive unit having a torsion element 100 or 44. Spring 44 is the only element in Craft's device that one of ordinary skill would characterize as a torsion element, and is the spring functionally involved in the mechanical oscillation. See, e.g., Craft, col. 6, lines 9-10. Element 100 is a "substantially frusto-conical brush shaft" disposed within a housing 104 and mechanically couples the brush head 28 to the motor. Thus, with respect to the mechanically oscillatory system, the brush shaft 100 is not a torsion element as one of ordinary skill would understand that term, but rather makes up a part of the sprung mass. See, e.g., Craft, col. 6, lines 11-14.

With respect to claim 1 as amended, neither spring 44 nor brush shaft 100, nor any other component or set of components of the Craft device can properly be considered a "torsion rod ... coupling the stator and rotor to one another in a torsionally elastic fashion." Rather, Craft is only

properly cited as a typical example of a mechanically oscillating drive unit using a coil spring (44) as a torsion element.

The hydraulic toothbrush of Moret also uses a coil (helical) spring (54) as a torsion element to establish, together with the mass of the hydraulic piston, shaft and instrument holder, an oscillatory system. See, e.g., Moret, col. 2, lines 14-18. One end of the Moret spring is adjustable to adjust its *pretensioning*, by selecting various radial grooves 61 to receive spring end 56, "such that the force retaining the piston 17 in its rest position ... is sufficient to avoid a movement of the piston ... when the device is operated without load or with a spraying nozzle 3." (Moret, col. 6, lines 48-52; see also col. 6, lines 27-30.) In other words, the *preload* of the spring is adjustable *so as to avoid oscillation at low forces*. Those of even ordinary skill in the art of oscillatory systems recognize that, when dealing with a linear spring such as the helical spring of Moret, adjusting preload within the elastic range does not appreciably alter the spring *constant*, or have any effect on the resonant frequency of an associated spring-mass system. Therefore, even if the adjustability of Moret's arrangement were added to Craft's electric toothbrush drive system (i.e., if Craft's spring 44 were mounted to enable adjustable preload), it would not result in the claimed invention. Applicants note that Moret mentions fine tuning of the resonant frequency of his device "after assembly of the major parts of the device in a simple manner by means of the helical spring 54 and tube 33... [T]he torsional tension of the helical spring 54 can be changed by the selection of an appropriate groove 61 for the spring end 56..." (Moret, col. 7, lines 54-60), but as changing the torsional tension of a helical spring does not change the spring constant, whatever frequency tuning Moret expected to accomplish must not have been due to selection of the spring end groove. Therefore, any incorporation of Moret's pretensioning adjustment mechanism in Craft's device would not be expected to provide a tuning adjustment. If the Examiner needs to consult any technical treatise on the subject of the lack of effect of torsional spring preload on spring constant or resonant frequency, reference is made to the Mechanical Design & Systems Handbook, 2nd edition, by Harold Rothbart, sections 39.1, 39.2 and 39.8 (with particular reference to section 39.2.1. A copy of these sections can be provided upon request, if needed.

In contrast, by configuring a tuning element to be fixed to a torsion rod at selectable positions along the torsion rod, the effective spring constant of the torsion rod is changed and the resonant frequency of the spring-mass system thereby adjusted.

Brosens is cited as showing a mirror positioning motor having a torsion bar within a hollow shaft, but provides no means of adjusting any resonant frequency associated with the torsion bar. In this system, the torsion bar acts to restore the rotor to its central position, but there is no suggestion of using the torsion bar as a spring of an oscillatory system to produce a desired resonance frequency, nor of adjusting a resonant frequency by altering a connection to a torsion bar.

Therefore, Applicants respectfully submit that the combination of these three references, even if considered by one of ordinary skill in the art at the time of this invention, would not have resulted in the invention now claimed, and that claims 1, 3-8 and 10-12 meet the requirements for patentability. It will be understood that many of the alterations to claim 1 as written do not, in fact, alter the scope of the claim but simply rearrange portions of the claim for better form.

Withdrawn method claim 15 has been amended to incorporate the limitations of amended product claim 1, such that, upon recognition of the allowability of claim 1, claims 15-18 may be rejoined in accordance with the *In re Ochai* doctrine.

CONCLUSION

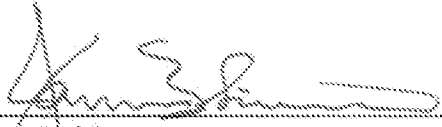
It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. For example, the Office Action necessarily addresses many features of the pending dependent claims in ways that are immaterial to the patentability of the claims as depending from a patentable base claim. In addition, because the arguments made above may not be exhaustive, there may be reason for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper

should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to amendment. Applicants respectfully request consideration of all filed IDS' not previously considered, by initialing and returning each Form 1449.

Applicant requests a one month extension of time. All fees are being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply all charges or credits to Deposit Account No. 06-1050, referencing Attorney Docket No. 02984-0754US1.

Respectfully submitted,

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